



Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 666 CLOSURE PROJECT

REVISION 0

September 21, 2002



**CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02**

ADMIN RECORD

IA-A-001107

Y/47

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 666 CLOSURE PROJECT

REVISION 0

September 21, 2002

Reviewed by:


Paul Miles, Quality Assurance


Date: 9/24/02

Reviewed by:


Duke Snyder, RISS ESH&Q Manager

Date: 9/24/02

Approved by:

 FOR
Kurt Kehler, K-H Project Manager

Date: 9/24/02

2

TABLE OF CONTENTS

ABBREVIATIONS/ACRONYMS	IV
EXECUTIVE SUMMARY	V
1 INTRODUCTION	1
1.1 PURPOSE.....	1
1.2 SCOPE.....	1
1.3 DATA QUALITY OBJECTIVES.....	1
2 HISTORICAL SITE ASSESSMENT	2
3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS	2
4 CHEMICAL CHARACTERIZATION AND HAZARDS	3
4.1 ASBESTOS	4
4.2 BERYLLIUM (Be).....	4
4.3 RCRA/CERCLA CONSTITUENTS [INCLUDING METALS AND VOLATILE ORGANIC COMPOUNDS (VOCs)].....	4
4.4 POLYCHLORINATED BIPHENYLS (PCBs).....	5
5 PHYSICAL HAZARDS	5
6 DATA QUALITY ASSESSMENT	5
7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES	6
8 FACILITY CLASSIFICATION AND CONCLUSIONS.....	6
9 REFERENCES	7

ATTACHMENTS

- A Facility Location Map
- B Radiological Data Summaries and Survey Maps
- C Chemical Data Summaries and Sample Maps
- D Data Quality Assessment (DQA) Detail

ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _w	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Building 666. Because this Type 1 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) to supplement the Reconnaissance Level Characterization of this Type 1 facility. Building surfaces characterized as part of this PDS included the walls, ceilings, and roofs. Environmental media beneath and surrounding the facilities were not within the scope of this PDS and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

This PDS encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report and Reconnaissance Level Characterization Report.

Results indicate that no radiological or chemical contamination exists in excess of the PDSP unrestricted release limits. Potentially PCB-containing fluorescent light ballasts and any hazardous-waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury-containing gauges, circuit boards, leaded glass, and lead-acid batteries) were previously removed from the building.

Based upon this PDSR, the Building 666 structure can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. To ensure that the facility remains free of contamination and that PDS data remain valid, isolation controls have been established, and the area has been posted accordingly.

1 INTRODUCTION

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Building 666. Because this Type 1 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) to supplement the Reconnaissance Level Characterization of this Type 1 facility. Building surfaces characterized as a part of this PDS included walls, ceilings and roofs. Additionally, environmental core samples of the slabs were taken and the results reported in this PDSR, to determine if the slab had to be disposed of as PCB waste. The environmental core sample results indicated no PCBs, and therefore, the slabs are not considered hazardous waste. Environmental media beneath and surrounding the facilities were not within the scope of this PDS and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are Building 666. The location of this facility is shown in Attachment A, Facility Location Map. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 1 facility can be demolished, the Reconnaissance Level Characterization Report (RLCR) must meet Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS); this document presents the PDS results for Building 666. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report and Reconnaissance Level Characterization Report.

1.1 Purpose

The purpose of this report is to communicate and document the results of the B666 PDS effort. PDSs are performed before building demolition to define the final radiological and chemical conditions of a facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the final radiological and chemical conditions of Building 666. Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

6

2 HISTORICAL SITE ASSESSMENT

A Facility-specific Historical Site Assessment (HSA) and a Reconnaissance Level Characterization (RLC) was conducted to understand the facility history and related hazards. The HSA consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report, and were used to design the RLC. The Building 666 RLC was performed in FY 2002 as part of Area 1, Group 13 RLCR (*Reconnaissance Level Characterization Report for Area 1, Group 13 Facilities*, April 3, 2002, Rev. 0). Based on the RLC results, B666 was classified as a Type 1 facility, and therefore another PDS characterization was required before demolition of the facility, this report documents the results of that PDS. The HSA and RLC results were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. HSA and RLC documentation is located in the RISS Characterization Project files.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building 666 was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files for the Building 666 Radiological Characterization Plan). Two radiological survey unit packages were developed: 666-A-001 for the B666 interior and G13-B-001 for the B666 exterior (B666 exterior was surveyed per PDS requirements as part of the Group 13 RLCR). Individual radiological survey unit packages are maintained in the RISS Characterization Project files.

Building 666 survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachment B, Radiological Data Summary and Survey Maps.

B666 Interior (Survey Unit 666-A-001)

Prior to the PDS, the building was stripped of equipment. The interior was classified as a MARSSIM Class 2 Survey Unit. A total of 20 TSA measurements (18 systematically grid, and 2 QC) and 18 RSA measurements (18 systematically grid) were taken, and scan surveys were performed. Alpha scan surveys of 100% of interior floor (111 m² minimum), 50% of the lower wall (<6 ft) surfaces (42 m² minimum), and 10% of the upper wall (>6 ft) and ceiling surfaces (20 m² minimum) at biased locations were performed. None of the measurements or scans indicated elevated activity above appropriate DCGL values. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment B-1, Radiological Data Summary and Survey Maps.

B666 Exterior (Survey Unit G13-B-001)

The B666 exterior was classified as a MARSSIM Class 3 Survey Unit. A total of 17 TSA measurements (15 random, 2 QC) and 15 RSA measurements (15 random) were taken, and a 5% minimum scan survey was performed. One measurement location possessed alpha activity (115.3 dpm/100 cm²) in excess of the transuranic DCGL_w (100 dpm/100 cm²). A coupon sample was collected at this location and analyzed using the Canberra ISOCS system, and results did not detect any DOE-enhanced radioactive materials. Therefore, the net activity at this location was reported as zero (0) dpm/100 cm², and no further investigation was required. The exterior surfaces of B666 are acceptable for unrestricted release. Refer to Attachment B-2 for survey data, statistical analysis results, survey locations, radiological scan maps, and gamma spectroscopy results.

The standard deviation for B666 Exterior, survey unit G13-B-001 was greater than 30 (actual standard deviation of 31.1). The data point calculation was recalculated using the actual standard deviation value of 31.1 as the sigma and determined that a sufficient number of samples (15) were taken in accordance with MARSSIM guidelines. Additionally, the original sample quantity of 15 included a 20% correction factor thereby ensuring an adequate number of samples taken.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building 666 was characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in these facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, PCBs, and RCRA/CERCLA constituents. Refer to Attachment C, Chemical Summary Data and Sample Maps, for details on sample results and sample locations. Isolation control postings are displayed on affected structures to ensure no hazardous materials are introduced.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in Building 666 in accordance with the RLCR for Group 13 dated April 3, 2002. A CDPHE-certified asbestos inspector conducted the inspections and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

After visual and tactile inspections of Building 666, no building materials suspected of containing asbestos were located. Therefore, no samples were taken from Building 666, and no data were entered in Attachment D.

4.2 Beryllium (Be)

A beryllium survey was conducted in Building 666 for the RLCR for Group 13 dated April 3, 2002. Building 666 was an anticipated Type 2 facility. Therefore, random and biased beryllium sampling was performed in accordance with the RLCP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*. Random sample points were computer generated, while biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition. All beryllium sample results were less than the investigative limit of $0.1 \mu\text{g}/100\text{cm}^2$. Since drum waste was present in Building 666 during the RLC, covering much of the concrete floor, additional beryllium sampling was performed after the drums had been removed. Ten (10) additional biased beryllium samples were collected on the underlying surfaces where the drums had been stored. The smear samples were collected in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*.

All beryllium smear sample results from Building 666 were less than the investigative limit of $0.1 \mu\text{g}/100\text{cm}^2$. Beryllium laboratory sample data and location maps are contained in Attachment C, "Chemical Data Summaries and Sample Maps."

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on the HSAR for Group 13 facilities, interviews, facility walkdowns and a review of historical WSRIC processes, Building 666 was only used for storage of TSCA waste. Therefore, RCRA/CERCLA contamination is not a concern, and samples were not taken.

The building may have contained some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, and lead-acid batteries. These items have been removed and managed in accordance with the Colorado Hazardous Waste Act.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR for Group 13 facilities, interviews, facility walkdowns and a review of historical WSRIC processes, the walls, ceilings and exterior surfaces of Buildings 666 were not suspected of being contaminated by chemical spills. However, environmental core samples were taken to determine if the slabs had to be disposed of as TSCA regulated waste. Four core samples, plus one duplicate, were taken from locations selected by evidence of oil stains. The environmental core sample results indicated no PCB contamination, and therefore the slabs are not considered TSCA waste. PCB laboratory sample data and location maps are contained in Attachment C, "Chemical Data Summaries and Sample Maps."

Based on the age of 666, paints used on the facility may contain PCBs; and therefore, painted surfaces will be managed as PCB Bulk Product Waste. Painted concrete surfaces can be used as backfill on site in accordance with approval received from EPA in November 2001 (letter from K. Clough, US EPA Region 8, to J. Legare, DOE RFFO, 8EPR-F, Approval of the Risk-Based Approach for Polychlorinated Biphenyls (PCB)-Based Painted Concrete), provided the concrete meets the unrestricted-release criteria outlined in the Concrete Recycling RSOP.

The facility may have contained PCB fluorescent light ballasts, however, all PCB ballasts have been removed from the facility.

5 PHYSICAL HAZARDS

Physical hazards associated with Building 666 consists of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, and therefore, does not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 666, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B and C) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys;
- ◆ the *types* of samples and surveys;
- ◆ the sampling/survey process as implemented "in the field"; and
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment D.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 666 will generate a variety of wastes. Estimated waste types and waste volumes are presented below. All wastes can be disposed of as sanitary waste, except PCB Bulk Product Waste. PCB ballasts and hazardous-waste items have been removed and managed pursuant to Site PCB and waste management procedures. All concrete surfaces can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete.

WASTE TYPES AND VOLUME ESTIMATES							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
666	800	0	450	950	0	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building 666 is classified as an RFCA Type 1 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Building 666 possesses no radiological or chemical contamination in excess of the PDSP unrestricted release limits. PCB ballasts and hazardous-waste items have been removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations.

The B666 PDS was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA. To ensure that Building 666 remains free of contamination and that PDS data remain valid, isolation controls have been established, and the facilities are posted accordingly.

9 REFERENCES

- DOE/RFEO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment."
- DOE Order 414.1A, "Quality Assurance."
- EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.
- K-H, 1999. Decommissioning Program Plan, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.
- MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575, EPA 402-R-97-016).
- PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.
- PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.
- PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.
- PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999.
- PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999.
- RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.
- RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.
- RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999
- Reconnaissance Level Characterization Report for Group 13 Facilities, April 3, 2002








12

ATTACHMENT A

Facility Location Map

Building 666

Standard Map Features

-  Buildings and other structures
-  Solar Evaporation Ponds (SEPs)
-  Lakes and ponds
-  Streams, ditches, or other drainage features
-  Fences and other barriers
-  Paved roads
-  Dirt roads

DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs, 1/95



Scale = 1 : 12450
1 inch represents approximately 1038 feet
750 0 500 1000
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:

DynCorp
THE ART OF TECHNOLOGY

Prepared for:

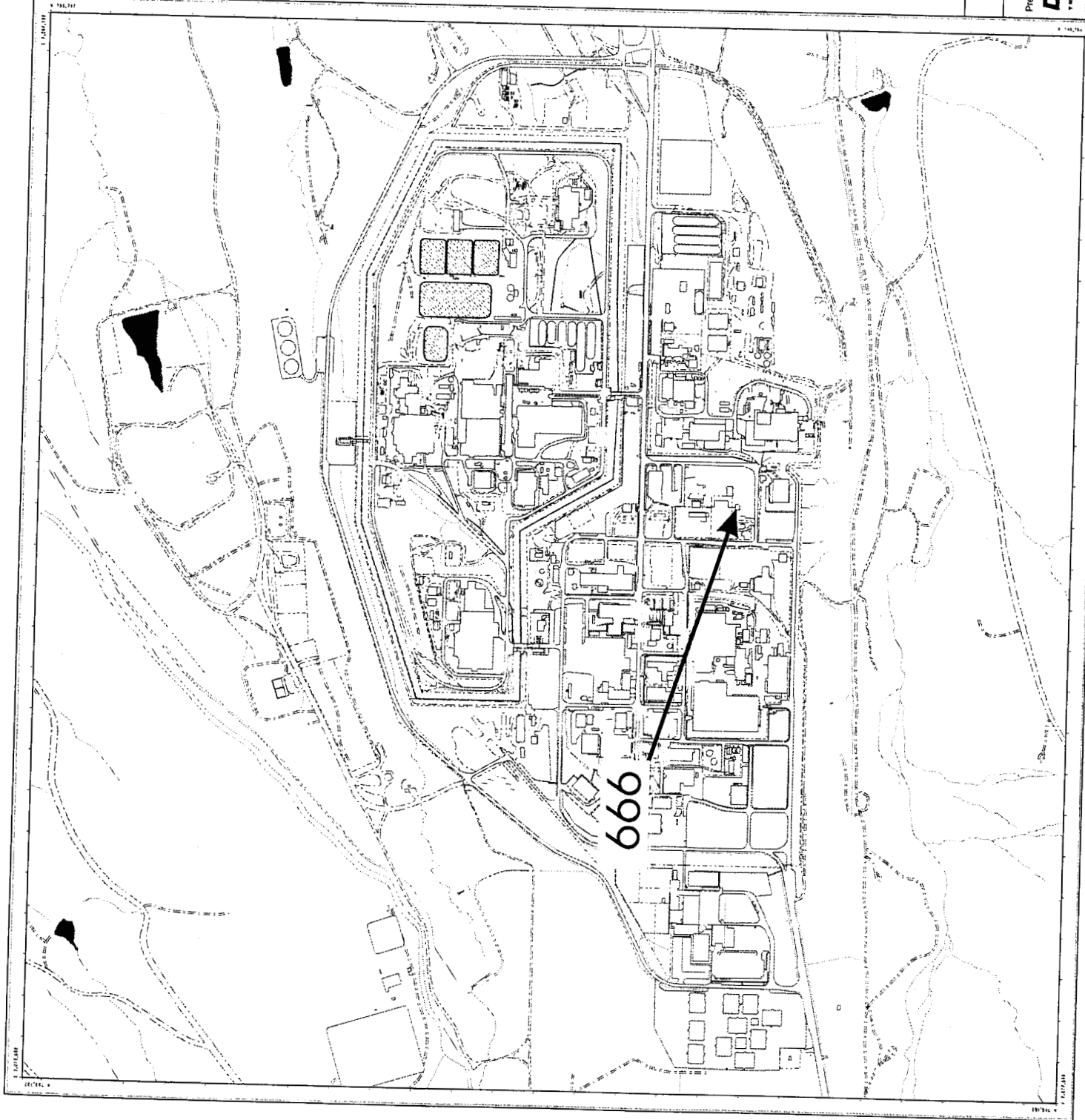


KAISER-TILL

MAP ID: FY 2002

September 18, 2001

NT:\SW\w\projects\fy2002\02-0155\B666-Over.cdr



ATTACHMENT B

Radiological Data Summaries and Survey Maps

ATTACHMENT B-1

Building 666 Interior

(Survey Unit 666-A-001)

16

SURVEY UNIT 666-A-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B666 (Interior)

666-A-001
PDS Data Summary

Total Surface Activity Measurements

	18	18
	Number Required	Number Obtained
MIN	-6.4	dpm/100 cm ²
MAX	48.4	dpm/100 cm ²
MEAN	19.2	dpm/100 cm ²
STD DEV	15.5	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

	18	18
	Number Required	Number Obtained
MIN	-1.5	dpm/100 cm ²
MAX	0.9	dpm/100 cm ²
MEAN	-0.8	dpm/100 cm ²
STD DEV	0.7	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 666-A-001
TSA - DATA SUMMARY**

Manufacturer:	NE Electra	NE Electra
Model:	DP-6	DP-6
Instrument ID#:	1	2
Serial #:	1260	396
Cal Due Date:	2/21/03	1/12/03
Analysis Date:	9/17/12	9/17/02
Alpha Eff. (c/d):	0.219	0.239
Alpha Bkgd (cpm)	3.3	1.3
Sample Time (min)	1.5	1.5
LAB Time (min)	1.5	1.5
MDC (dpm/100cm ²)	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	1	6.0	27.4	7.3	33.3	5.9
2	1	15.3	69.9	8.0	36.5	48.4
3	1	10.0	45.7	6.0	27.4	24.2
4	2	8.0	33.5	2.7	11.3	12.0
5	2	10.7	44.8	2.0	8.4	23.3
6	2	5.3	22.2	1.3	5.4	0.7
7	1	11.3	51.6	7.3	33.3	30.1
8	1	3.3	15.1	4.7	21.5	-6.4
9	1	11.3	51.6	7.3	33.3	30.1
10	2	8.0	33.5	2.7	11.3	12.0
11	2	8.7	36.4	3.3	13.8	14.9
12	2	6.0	25.1	2.0	8.4	3.6
13	1	12.0	54.8	6.0	27.4	33.3
14	1	7.3	33.3	3.3	15.1	11.8
15	1	6.0	27.4	5.3	24.2	5.9
16	1	14.0	63.9	6.7	30.6	42.4
17	1	13.3	60.7	7.3	33.3	39.2
18	1	8.0	36.5	2.7	12.3	15.0

1 - Average LAB used to subtract from Gross Sample Activity

21.5	Sample LAB Average
MIN	-6.4
MAX	48.4
MEAN	19.2
SD	15.5
Transuranic DCGL _w	100

QC Measurements

6 QC	1	14.7	67.1	4.7	21.5	41.1
5 QC	1	8.7	39.7	6.7	30.6	13.7

1 - Average QC LAB used to subtract from Gross Sample Activity

26.0	QC LAB Average
Transuranic DCGL _w	100

**SURVEY UNIT 666-A-001
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline
Model:	SAC-4	SAC-4
Instrument ID#:	5	6
Serial #:	824	966
Cal Due Date:	10/1/02	11/6/02
Analysis Date:	9/17/02	9/17/02
Alpha Eff. (c/d):	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.5
Sample Time (min)	2	2
Bkgd Time (min)	10	10
MDC (dpm/100cm²)	9.0	9.0

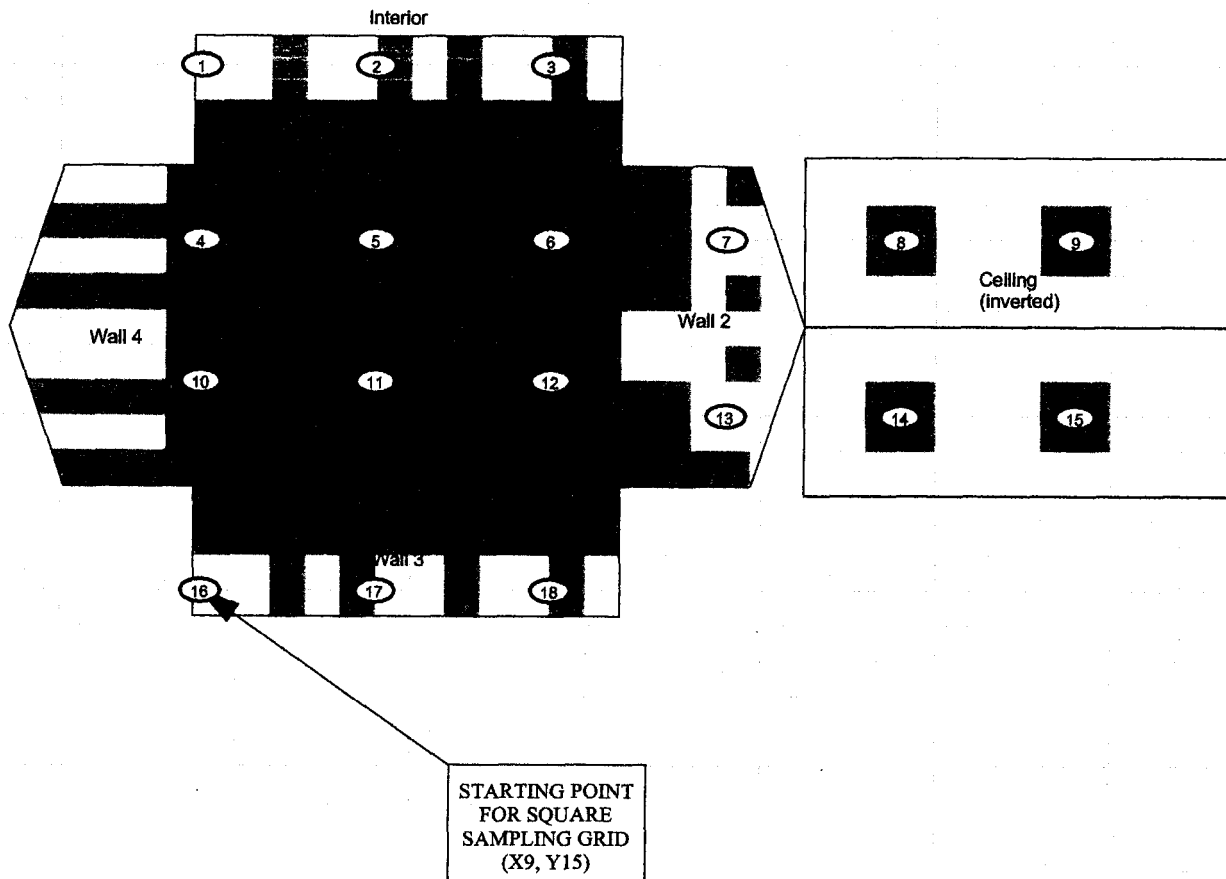
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	5	0.0	-0.6
2	6	0.0	-1.5
3	5	0.0	-0.6
4	6	1.0	0.0
5	5	0.0	-0.6
6	6	0.0	-1.5
7	5	0.0	-0.6
8	6	0.0	-1.5
9	5	0.0	-0.6
10	6	0.0	-1.5
11	5	0.0	-0.6
12	6	0.0	-1.5
13	5	1.0	0.9
14	6	0.0	-1.5
15	5	0.0	-0.6
16	6	0.0	-1.5
17	5	0.0	-0.6
18	6	1.0	0.0
		MIN	-1.5
		MAX	0.9
		MEAN	-0.8
		SD	0.7
		Transuranic DCGL_w	20

PRE-DEMOLITION SURVEY FOR BUILDING 666

Survey Area: A Survey Unit: B666-A-001 Classification: 2
 Building: 666
 Survey Unit Description: Interior of Building
 Total Area: 401 sq. m. Total Floor Area: 111 sq. m.

PAGE 1 OF 1

Building 666



Scan Area

SURVEY MAP LEGEND (X) Smear & TSA Location (X) Smear, TSA & Sample Location ■ Open/Inaccessible Area □ Area in Another Survey Unit	Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Scan Survey Information Survey Instrument ID #(s): 3, 8, 9 RCT ID #(s): 4, 5, 6	<div style="text-align: center;"> N FEET 0 ————— 25 METERS 0 ————— 8 </div> <p>1 inch = 18 feet 1 grid sq. = 1 sq. m.</p>	<div style="text-align: center;"> U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 Prepared for: </div> <div style="text-align: center;"> THE ART OF TECHNOLOGY </div> <div style="text-align: center;"> MAP ID: 02-0155/666-IN-SC September 20, 2002 </div>
---	--	---	---

ATTACHMENT B-2

Building 666 Exterior

(Survey Unit G13-B-001)

SURVEY UNIT G13-B-001
RADIOLOGICAL DATA SUMMARY

Survey Unit Description: Exterior of B666

**G13-B-001
Radiological
Data Summary**

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	15	15		15	15
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	0.0	dpm/100 cm ²	MIN	-0.6	dpm/100 cm ²
MAX *	86.4	dpm/100 cm ²	MAX	3.0	dpm/100 cm ²
MEAN	43.8	dpm/100 cm ²	MEAN	1.1	dpm/100 cm ²
STD DEV	31.1	dpm/100 cm ²	STD DEV	1.5	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²	TRANSURANIC DCGL _w	20	dpm/100 cm ²

• The roof of B666 had initial alpha activity greater than the DCGLW (100 dpm/100 cm²) at sample location # 5 (115.3 dpm/100 cm²). A roof coupon/sample was collected and analyzed using the Canberra ISOCS gamma spectroscopy system. Results did not indicate any weapons grade plutonium was present; however, uranium was detected. Therefore, the net activity for this sample location was compared to the Uranium DCGL_w of 5,000 dpm/100 cm², and no further investigation is required. The surfaces of B666 are acceptable for unrestricted release. Gamma spectroscopy results are included as a part of this survey package.

**SURVEY UNIT G13-B-001
TSA DATA SUMMARY**

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9	11
Serial #:	1379	3114	3109	3114
Cal Due Date:	5/6/02	4/25/02	3/25/02	8/15/02
Analysis Date:	2/7/02	2/7/02	2/27/02	3/13/02
Alpha Eff. (c/d):	0.202	0.209	0.210	0.208
Alpha Bkgd (cpm)	6.0	6.0	1.3	2.7
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²)
1	7	13.3	65.8	6.7	33.2	27.2
2	11	22.7	109.1	13.3	63.9	70.5
3	11	24.7	118.8	5.3	25.5	80.2
4	11	20.7	99.5	9.3	44.7	60.9
5 *	11	32.0	153.8	10.0	48.1	0.0
6	7	10.0	49.5	5.3	26.2	10.9
7	11	26.0	125.0	8.7	41.8	86.4
8	7	20.7	102.5	7.3	36.1	63.9
9	7	14.0	69.3	11.3	55.9	30.7
10	7	13.3	65.8	4.7	23.3	27.2
11	7	11.3	55.9	8.0	39.6	17.3
12	7	8.7	43.1	7.3	36.1	4.5
13	11	23.3	112.0	7.3	35.1	73.4
14	7	12.0	59.4	6.7	33.2	20.8
15	7	24.7	122.3	7.3	36.1	83.7

1 - Average LAB used to subtract from Gross Sample Activity

38.6	Sample LAB Average
MIN	0.0
MAX	86.4
MEAN	43.8
SD	31.1
Transuranic DCGL _w	100

QC Measurements

10QC	8	10.0	47.8	8.0	38.3	6.4
1QC	11	15.3	73.6	9.3	44.7	32.1

1 - Average QC LAB used to subtract from Gross Sample Activity

41.5	QC LAB Average
QC MIN	6.4
QC MAX	32.1
QC MEAN	19.2
QC SD	18.2
Transuranic DCGL _w	100

* The roof of B666 had initial alpha activity greater than the DCGLW (100 dpm/100 cm²) at sample location # 5 (115.3 dpm/100 cm²). A roof coupon/sample was collected and analyzed using the Canberra ISOCSS gamma spectroscopy system. Results did not indicate any weapons grade plutonium was present; however, uranium was detected. Therefore, the net activity for this sample location was compared to the Uranium DCGL_w of 5,000 dpm/100 cm², and no further investigation is required. The surfaces of B666 are acceptable for unrestricted release. Gamma spectroscopy results are included as a part of this survey package.

**SURVEY UNIT G13-B-001
SMEAR DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	1	2	3	4	5	6
Serial #:	767	1164	767	1164	770	959
Cal Due Date:	4/30/02	5/13/02	4/30/02	5/13/02	7/25/02	7/14/02
Analysis Date:	2/7/02	2/7/02	3/14/02	3/14/02	3/14/02	3/14/02
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.2	0	0	0.1	0.1
Sample Time (min)	2	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10	10
MDC (dpm/100cm²)	7.0	8.0	4.5	4.5	7.0	7.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	2	1.0	2.4
2	3	0.0	0.0
3	4	0.0	0.0
4	5	1.0	2.7
5	6	0.0	-0.3
6	1	1.0	2.7
7	3	0.0	0.0
8	1	1.0	2.7
9	1	0.0	-0.3
10	1	0.0	-0.3
11	2	1.0	2.4
12	2	0.0	-0.6
13	4	1.0	3.0
14	2	0.0	-0.6
15	1	1.0	2.7
		MIN	-0.6
		MAX	3.0
		MEAN	1.1
		SD	1.5
		Transuranic DCGL _w	20

PRE-DEMOLITION SURVEY FOR GROUP 13

Survey Area: B

Survey Unit: G13-B-001

Classification: 3

Building: 666

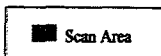
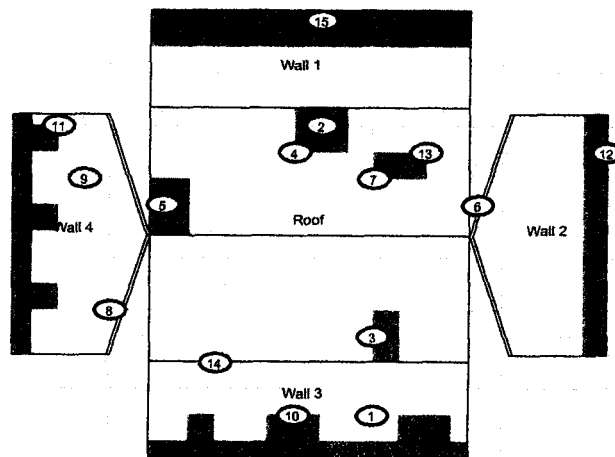
Survey Unit Description: Exterior

Total Area: 290 sq. m.

Total Floor Area: 118 sq. m.

PAGE 1 OF 1

**Building 666
Exterior**



SURVEY MAP LEGEND <ul style="list-style-type: none">Smear & TSA LocationSmear, TSA & Sample LocationOpen/Inaccessible AreaArea in Another Survey Unit		<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p> <p>Scan Survey Information Survey Instrument ID #(s): <u>10, 11</u> RCT ID #(s): <u>2, 3</u></p>		<p>N</p> <p>↑</p>		<p>0 FEET 30</p> <p>0 METERS 10</p> <p>1 inch = 24 feet 1 grid sq. = 1 sq. m.</p>		<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-886-7707</p> <p>DynCorp THE ART OF TECHNOLOGY</p> <p>MAP ID: 02-0155/666-EX-SC</p>		<p>Prepared for:</p> <p>Sept 20, 2002</p>	
---	--	---	--	--------------------------	--	---	--	--	--	---	--



Analysis Results Header

3/21/2002 7:40:14 AM

Page 1

***** GAMMA SPECTRUM ANALYSIS *****
** Canberra Mobile Laboratory Services **

Report Generated On : 3/21/2002 7:40:14 AM

RIN Number : 02D1015
Analytical Batch ID : 0203204732
Line Item Code : RC10B019

Filename: A:\G1900017.CNF

Sample Number : 02d1015-002.001
Lab Sample Number : 1023
Sample Receipt Date : 3/20/2002
Sample Volume Received : 9.80E+000 GRAMS

Result Identifier : N/A

Peak Locate Threshold : 3.25
Peak Locate Range (in channels) : 100 - 8192
Peak Area Range (in channels) : 100 - 8192
Identification Energy Tolerance : 1.000 keV

Sample (Final Aliquot Size) : 9.800E+000 GRAMS
Sample Quantity Error : 0.000E+000
Systematic Error Applied : 0.000E+000

Sample Taken On : 3/19/2002 8:00:00 AM
Acquisition Started : 3/20/2002 12:53:33 PM

Count Time : 14400.0 seconds
Real Time : 14411.1 seconds
Dead Time : 0.08 %

Energy Calibration Used Done On : 2/07/02
Energy = -0.259 + 0.250*ch + -1.22E-008*ch^2 + 8.54E-013*ch^3

Corrections Applied:
None

Efficiency Calibration Used Done On : 3/20/02
Efficiency Geometry ID : 02D1015-002.001

Analyzed By: Brian Anderson Date: 03/21/02

Reviewed By: Daniel Remington Date: 03/21/02

B666 Exterior

Metal Coupon Sample

28



***** Sample and QC Sample Results Summary *****

Site Sample ID : 02d1015-002.001

Analytical Batch ID : 0203204732

Sample Type (Result Identifier): G19

Lab Sample Number : 1023

Geometry ID : 02D1015-002.001

Filename: A:\G1900017.CNF

Detector Name: BEGE4732

MDA = Curie method as specified in Genie-2000 Customization Tools Manual
Appendix B; Basic Algorithms.

Analyte	Activity (pCi/GRAMS)	2-Sigma Uncertainty (pCi/GRAMS)	MDA (pCi/GRAMS)
K-40	3.49E+001	4.98E+000	5.11E+000
CS-137	0.00E+000	0.00E+000	5.07E-001
TL-208	6.90E-001	2.57E-001	3.82E-001
PO-210	0.00E+000	0.00E+000	4.52E+004
BI-212	0.00E+000	0.00E+000	7.56E+000
PB-212	9.68E-001	2.46E-001	3.89E-001
BI-214	0.00E+000	0.00E+000	9.87E-001
PB-214	0.00E+000	0.00E+000	7.73E-001
RA-226	0.00E+000	0.00E+000	5.31E+000
AC-228	0.00E+000	0.00E+000	1.96E+000
TH-230	0.00E+000	0.00E+000	3.92E+001
Th-231	0.00E+000	0.00E+000	1.86E+000
PA-234	0.00E+000	0.00E+000	4.59E-001
PA-234M	0.00E+000	0.00E+000	6.11E+001
U-235	5.45E-001	2.23E-001	3.29E-001
U238/234	5.11E+000	1.76E+000	2.07E+000
AM-241	0.00E+000	0.00E+000	3.84E-001

ATTACHMENT C

Chemical Data Summaries and Sample Maps

Beryllium Data Summary

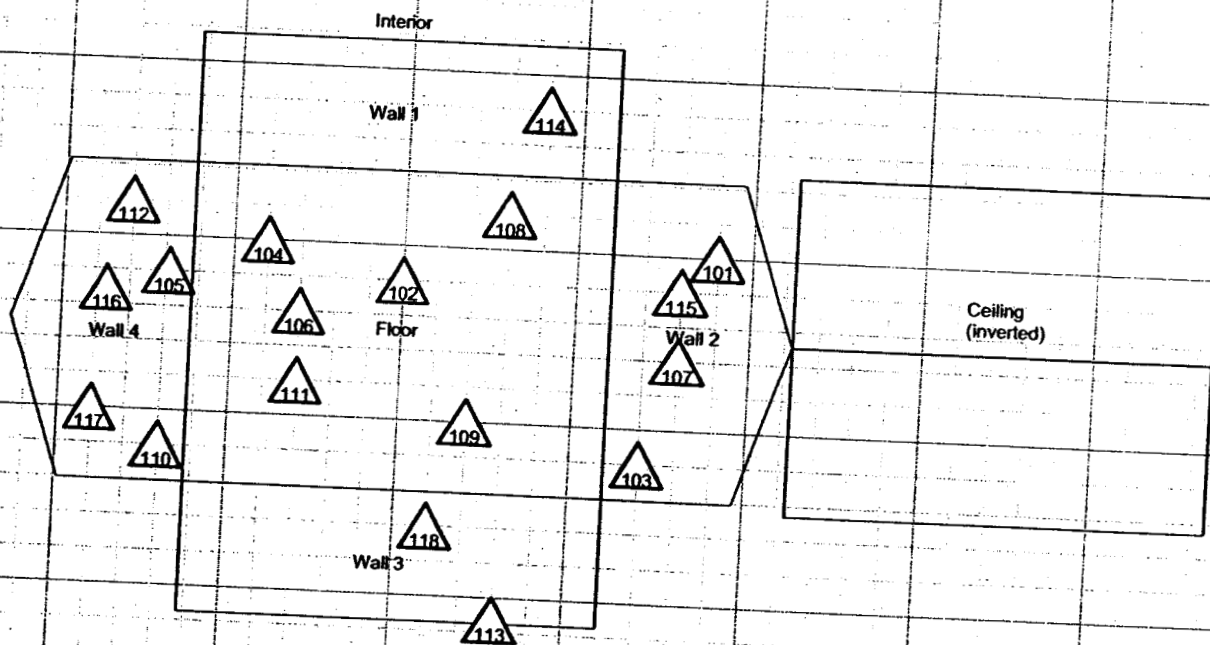
Sample Number	Map Survey Point Location	Sample Location	Result ($\mu\text{g}/100 \text{ cm}^2$)
666-02222002-315-101	101	Building 666	
666-02222002-315-102	102	East corrugated metal wall	
666-02222002-315-103	103	Concrete floor	< 0.1
666-02222002-315-104	104	East corrugated metal wall	< 0.1
666-02222002-315-105	105	Concrete floor	< 0.1
666-02222002-315-106	106	West corrugated metal wall	< 0.1
666-02222002-315-107	107	Concrete floor	< 0.1
666-02222002-315-108	108	East roll-up door	< 0.1
666-02222002-315-109	109	Concrete floor	< 0.1
666-02222002-315-110	110	Concrete floor	< 0.1
666-02222002-315-111	111	West corrugated metal wall	< 0.1
666-02222002-315-112	112	Concrete floor	< 0.1
666-02222002-315-113	113	West corrugated metal wall	< 0.1
666-02222002-315-114	114	South corrugated metal wall	< 0.1
666-02222002-315-115	115	Red angle iron horizontal brace, north wall	< 0.1
666-02222002-315-116	116	Red angle iron horizontal brace, east wall	< 0.1
666-02222002-315-117	117	Red angle iron horizontal brace, west wall	< 0.1
666-02222002-315-118	118	Red angle iron horizontal brace, west wall	< 0.1
666-09172002-315-101	101	Red angle iron horizontal brace, south wall	< 0.1
666-09172002-315-102	102	On concrete floor	< 0.1
666-09172002-315-103	103	On concrete floor	< 0.1
666-09172002-315-104	104	On concrete floor	< 0.1
666-09172002-315-105	105	On concrete floor	< 0.1
666-09172002-315-106	106	On metal spill pan	< 0.1
666-09172002-315-107	107	On metal spill pan	< 0.1
666-09172002-315-108	108	On concrete floor	< 0.1
666-09172002-315-109	109	On concrete floor	< 0.1
666-09172002-315-110	110	On concrete floor	< 0.1

CHEMICAL SAMPLE MAP FOR GROUP 13

Building: 666 Interior

PAGE 2 OF 2

Building 666

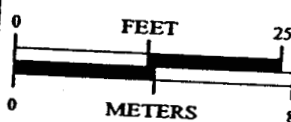


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

Neither the United States Government nor Kaiser Hill Co. nor DynCorp M&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

- Open/Inaccessible Area
- Area in Another Survey Unit



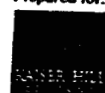
1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

DynCorp
THE ART OF TECHNOLOGY



MAP ID: 02-0455/666BE-2

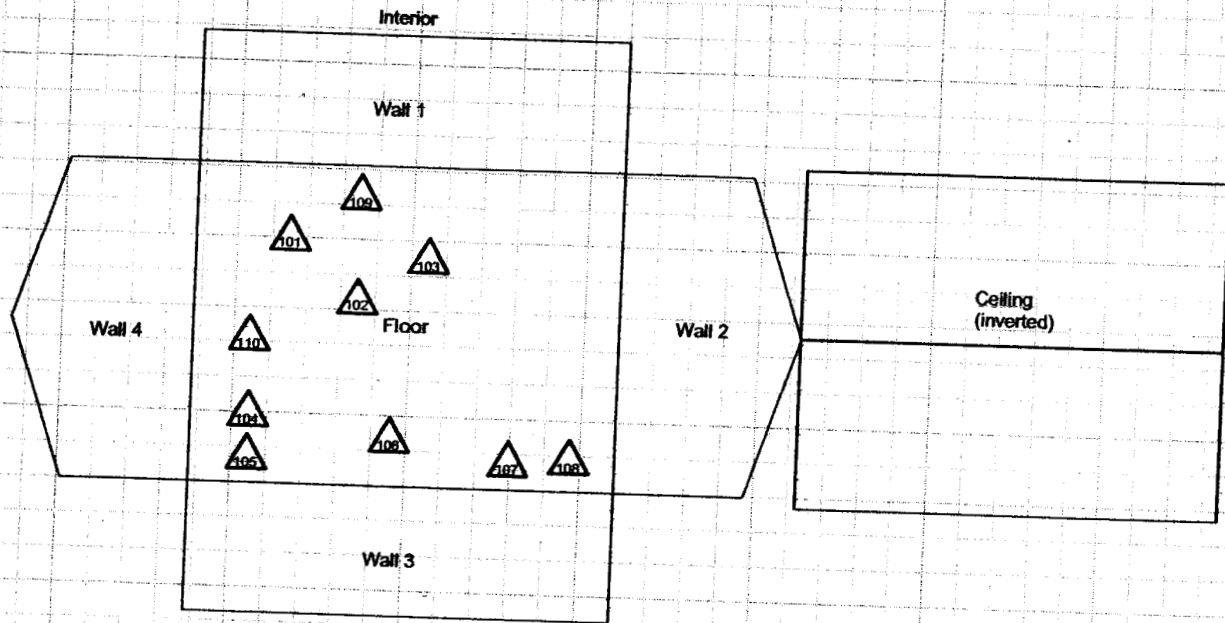
February 20, 2002

CHEMICAL SAMPLE MAP FOR GROUP 13

Building: 666 Interior

PAGE 1 OF 1

Building 666

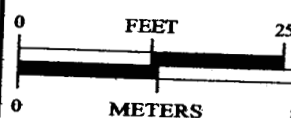


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-806-7707

Prepared for:

DynCorp
THE ART OF TECHNOLOGY

Kaiser Hill

MAP ID: 02-0155/666BE-PDS

Sept 17, 2002

PCB Data Summary

Sample Number	Sample Location	Arcolor	Results (ug/kg)
02S0241-001.001 through 02S0241-005.001	Bldg 666, Slab, as indicated on map, Locations #1 - 5	All	Below Regulatory Levels

Regulatory Level for PCB's: 50ppm

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

001.001

Lab Name: B559 Batch: 4171091802
 Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 02S0241
 Matrix: (soil/water) SOIL Lab Sample ID: 02S0241.001.001
 Sample wt/vol: 10 (g/ml) G Lab File ID: 09190215.D
 % Moisture: 0 decanted: (Y/N) N Date Received: 9/16/02
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 9/18/02
 Concentrated Extract Volume: 10 (uL) Date Analyzed: 9/19/02
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

12674-11-2	Aroclor-1016	0.10	U
11104-28-2	Aroclor-1221	0.10	U
11141-16-5	Aroclor-1232	0.10	U
53469-21-9	Aroclor-1242	0.10	U
12672-29-6	Aroclor-1248	0.10	U
11097-69-1	Aroclor-1254	0.10	U
11096-82-5	Aroclor-1260	0.10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

002.001

Lab Name: B559 Batch: 4171091802
 Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 02S0241
 Matrix: (soil/water) SOIL Lab Sample ID: 02S0241.002.001
 Sample wt/vol: 10 (g/ml) G Lab File ID: 09190216.D
 % Moisture: 0 decanted: (Y/N) N Date Received: 9/16/02
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 9/18/02
 Concentrated Extract Volume: 10 (uL) Date Analyzed: 9/19/02
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

12674-11-2	Aroclor-1016	0.10	U
11104-28-2	Aroclor-1221	0.10	U
11141-16-5	Aroclor-1232	0.10	U
53469-21-9	Aroclor-1242	0.10	U
12672-29-6	Aroclor-1248	0.10	U
11097-69-1	Aroclor-1254	0.10	U
11096-82-5	Aroclor-1260	0.10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

003.001

Lab Name: B559 Batch: 4171091802
 Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 02S0241
 Matrix: (soil/water) SOIL Lab Sample ID: 02S0241.003.001
 Sample wt/vol: 10 (g/ml) G Lab File ID: 09190217.D
 % Moisture: 0 decanted: (Y/N) N Date Received: 9/16/02
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 9/18/02
 Concentrated Extract Volume: 10 (uL) Date Analyzed: 9/19/02
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

12674-11-2	Aroclor-1016	0.10	U
11104-28-2	Aroclor-1221	0.10	U
11141-16-5	Aroclor-1232	0.10	U
53469-21-9	Aroclor-1242	0.10	U
12672-29-6	Aroclor-1248	0.10	U
11097-69-1	Aroclor-1254	0.10	U
11096-82-5	Aroclor-1260	0.10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

004.001

Lab Name: B559 Batch: 4171091802
 Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 02S0241
 Matrix: (soil/water) SOIL Lab Sample ID: 02S0241.004.001
 Sample wt/vol: 10 (g/ml) G Lab File ID: 09190218.D
 % Moisture: 0 decanted: (Y/N) N Date Received: 9/16/02
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 9/18/02
 Concentrated Extract Volume: 10 (uL) Date Analyzed: 9/19/02
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

12674-11-2	Aroclor-1016	0.10	U
11104-28-2	Aroclor-1221	0.10	U
11141-16-5	Aroclor-1232	0.10	U
53469-21-9	Aroclor-1242	0.10	U
12672-29-6	Aroclor-1248	0.10	U
11097-69-1	Aroclor-1254	0.10	U
11096-82-5	Aroclor-1260	0.10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

005.001

Lab Name: B559 Batch: 4171091802
 Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 02S0241
 Matrix: (soil/water) SOIL Lab Sample ID: 02S0241.005.001
 Sample wt/vol: 10 (g/ml) G Lab File ID: 09190219.D
 % Moisture: 0 decanted:(Y/N) N Date Received: 9/16/02
 Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 9/18/02
 Concentrated Extract Volume: 10 (uL) Date Analyzed: 9/19/02
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

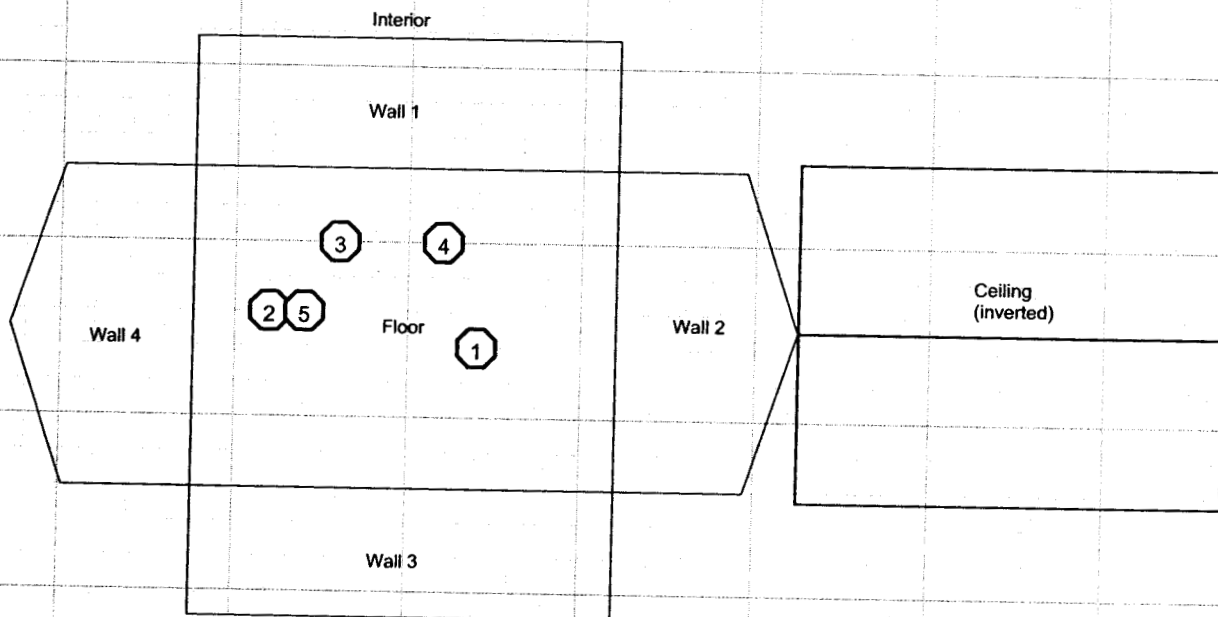
12674-11-2	Aroclor-1016	0.10	U
11104-28-2	Aroclor-1221	0.10	U
11141-16-5	Aroclor-1232	0.10	U
53469-21-9	Aroclor-1242	0.10	U
12672-29-6	Aroclor-1248	0.10	U
11097-69-1	Aroclor-1254	0.10	U
11096-82-5	Aroclor-1260	0.10	U

CHEMICAL SAMPLE MAP FOR BUILDING 666 PDSR

Building: 666

PAGE 1 OF 1

Building 666 Interior



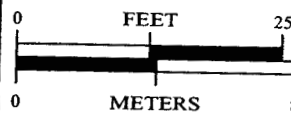
SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.



- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

DynCorp
THE ART OF TECHNOLOGY



MAP ID: 02-0155/666-IN-PCB September 20, 2002

ATTACHMENT D

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION (V&V) OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium and PCBs).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed. The radiological survey assessment is provided in Table D-1, beryllium in Table D-2 and PCBs in Table D-3. A data completeness summary for all results is given in Table D-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project File. The report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Building 666 based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented for the B666 based on the transuranic limits used as DCGLs in the unrestricted release decision process. Elevated activity on exterior Survey Unit sample locations had media samples taken and analyzed by ISOCS Canberra gamma spectroscopy. No transuranic isotope activity was detected; elevated activity was determined to be uranium and/or other naturally occurring isotope activity. Consequently, coupon sample results were evaluated against, and were less than the uranium DCGL_w (5,000 dpm/100cm²) unrestricted release limit. On this basis, elevated transuranic TSA net activity was reported as zero (0) in the TSA exterior data summaries, as applicable.

Consistent with EPA's G-4 DQO process, the radiological survey design for each survey unit performed per PDS requirements was optimized by checking actual measurement results acquired during pre-demolition surveys against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

DQA SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on the qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled per PDS requirements yielded results less than their associated action levels and with acceptable certainties. However, one anomalous condition existed for survey unit G13-B-001 regarding the standard deviation and is discussed below.

- The Standard Deviation for survey unit G13-B-001, B666 exterior, was greater than 30 (actual standard deviation of 31.1). The minimum number of data points required per MARSSIM was recalculated using the actual standard deviation of 31.1 as the sigma value and determined that 12.18 samples were required. The number of samples taken (15) was sufficient to satisfy MARSSIM guidelines. Additionally, the original sample quantity of 15 included a 20% correction factor thereby ensuring an adequate number of samples taken. On this basis, the original standard deviation of 31.1 is reported in the TSA Data Summary.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Completion of this PDSR confirmed that PDS contamination release guidelines were met. Level 2 Isolation Control postings are displayed at building entrances to ensure PDSR integrity. In summary, Building 666 meets the unrestricted release criteria with the confidences stated herein.

Table D-1 V&V of Building 666 Radiological Results

Table D-1 V&V of Building 666 Radiological Results				
V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16,00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
ACCURACY	Parameters	Measure	Frequency	COMMENTS
PRECISION	Initial calibrations	90% \leq x \leq 110%	\geq 1	
	Daily source checks	80% \leq x \leq 120%	\geq 1/day	
	Local area background: Field	typically \leq 10 dpm	\geq 1/day	
REPRESENTATIVENESS	Field duplicate measurements for TSA	\geq 5% of real survey points	\geq 10% of reals	
	MARSSIM methodology: Survey Units B666-A-001 and G13-B-001.	statistical and biased	NA	
	Survey Maps	NA	NA	
COMPARABILITY	Controlling Documents (Characterization Pkg: RSPs)	qualitative	NA	
	Units of measure	dpm/100cm ²	NA	
COMPLETENESS	Plan vs. Actual surveys	$>$ 95%	NA	
SENSITIVITY	Usable results vs. unusable	$>$ 95%	NA	
	Detection limits	TSA: \leq 50 dpm/100cm ² RA: \leq 10 dpm/100cm ²	all measures	
				PDS MDAs \leq 50% DCGL _w

Table D-2 V&V of Building 666 Beryllium Results

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE	
BERYLLIUM	Prep: NMAM 7300	LAB ---->	Johns Manville, Littleton, Co.
	METHOD: OSHA ID-125G	RIN ---->	RIN02Z0943
QUALITY REQUIREMENTS			
ACCURACY		Measure	Frequency
PRECISION	Calibrations Initial	linear calibration	≥1
	Continuing LCS/MS	80%<%R<120%	≥1
	Blanks - lab & field	80%<%R<120%	≥1
	Interference check std (ICP)	<MDL	≥1
	LCSD	NA	NA
REPRESENTATIVENESS	Field duplicate	80%<%R<120% (RPD<20%)	≥1
	COC	all results < RL	≥1
	Hold times/preservation	Qualitative	NA
COMPARABILITY	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA
	Measurement units	Qualitative	NA
COMPLETENESS	Plan vs. Actual samples	ug/100cm ²	NA
	Usable results vs. unusable	>95%	NA
SENSITIVITY	Detection limits	>95%	NA
		MDL of 0.012 ug/100cm ²	all measures
COMMENTS			
No qualifications significant enough to change project decisions, i.e. classification of a Type I Facility confirmed; all results were below associated action levels.			

Table D-3 V&V of Building 666 PCB Results

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE	
PCBs	METHOD: SW8082	LAB ---->	RFETS B559 Laboratories
		RIN ---->	RIN02S0241
QUALITY REQUIREMENTS			
		Measure	Frequency
ACCURACY	Calibrations:		
	Initial	$r^2 > 0.99$	$\geq 1/\text{batch}$
	Continuing	$80\% < \%R < 120\%$	$\geq 1/\text{batch}$
	LCS		
	MS	$80\% < \%R < 120\%$	$\geq 1/\text{batch}$
PRECISION	Blanks - Labs	$75\% < \%R < 125\%$	$\geq 1/\text{batch}$
	MSD	$< \text{MDL}$	$\geq 1/\text{batch}$
	Field duplicate	$75\% < \%R < 125\%$	$\geq 1/\text{batch}$
	COC	all results $< \text{RL}$	$\geq 1/\text{batch}$
REPRESENTATIVENESS	Hold times/preservation	Qualitative	NA
	Controlling Documents (Plans, Procedures, maps, etc.)	≤ 30 days extract ≤ 45 days analysis	NA
	Measurement units	Qualitative	NA
COMPARABILITY		ug/kg	NA
COMPLETENESS	Plan vs. Actual samples	$> 95\%$	NA
	Usable results vs. unusable	$> 95\%$	NA
SENSITIVITY	Detection limits	Various	all analytes
<p>COMMENTS</p> <p>No qualifications significant enough to change project decision, i.e., classification of Type 1 areas confirmed; all PCB concentrations well below associated action levels (< 50 ppm)</p>			

Table D-4 Data Completeness Summary For Building 666

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	B666 (interior)	5 biased (interior)	10 biased (interior)	No contamination found at any location	10CFR850; OSHA ID-125G - RIN02Z0943
PCBs	B666 (interior)	4 (solids) and 1 duplicate (biased)	4 (solids) and 1 duplicate (biased)	No PCB contamination found, all results less than the regulatory limit	No results above the action level (0.2 ug/100cm ²) or investigative level (0.1 ug/100cm ²) 40CFR761; SW846/Method 8082 - RIN02S0241
Radiological	Survey Area A Survey Unit: B666-A-001 Bldg. 666 (interior)	18 α TSA and 18 α Smears (systematic) 2 QC TSA 100% scan interior floor, 50% scan wall < 6 ft., 10% of walls and ceiling > 6 feet	18 α TSA and 18 α Smears (systematic) 2 QC TSA 100% scan interior floor, 50% scan wall < 6 ft., 10% of walls and ceiling > 6 feet	No contamination at any location; all values below unrestricted release levels	No results above DCGL _w or DCGL _{EMC} action level (20 dpm/100cm ² removable, 100 dpm/100cm ² average, and 300 dpm/100cm ² maximum).
Radiological	Survey Unit: G13-B-001 Bldg. 666 (exterior)	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	No contamination at any location; all values below unrestricted release levels	No results above DCGL _w or DCGL _{EMC} action level (20 dpm/100cm ² removable, 100 dpm/100cm ² average, and 300 dpm/100cm ² maximum). Sample location #5, roof exterior - initial activity > DCGL _w (115.3 dpm/100cm ²). Coupon sample taken and analyzed by ISOCS Canberra gamma spectroscopy. No transuranic isotope activity was detected; elevated activity was determined to be uranium and/or other naturally occurring isotope activity. Consequently, coupon sample results were evaluated against, and were less than the uranium DCGL _w (5,000 dpm/100cm ²) unrestricted release limit. On this basis, elevated transuranic TSA net activity was reported as zero (0) in the TSA exterior data summaries, as applicable.

17/47